present paper will therefore be concerned with its broader geological aspects. Viewed from any of the neighbouring spurs, the valley of the Ownacree (the "Quagmire River" of the Ordnance Survey) now seems occupied by a black flood, winding with the course of the original stream. Here and there lake-like expansions occur, with pools of water on their surface; and, lower down the valley, the stream asserts itself, and is now cutting out a channel through the débris, or, rather, is washing out its original course. Without an intimate acquaintance with the country, it is difficult to know what changes have occurred in the form of the true valley-floor; but the local constabulary assert (*Freeman's Journal*, January 2, 1897) that a considerable deepening of the valley has resulted in places from the scouring action of the flow. This obviously applies only to the first two miles or so below the quarries, where the stream originally ran over a flank of the great Annagh bog. At and below Annagh Bridge no trace of any deepening is to be seen; the torrent is merely washing its way clean again, and revealing the original boulders on its floor.

To return to details, the passage of the flow across the western road, between Quarry Lodge and the older quarries, resulted in the filling up of a limestone-quarry and the destruction of the embankment of the road, together with its double hedges. Judging by the state of things at Annagh Bridge, the upper bridge may perhaps be found also standing, when the peat-flood can be cleared away. The destruction here is, however, considerable, and the oozing of the material through the hedges reminds one of the behaviour of some of the thin lava-sheets of Hawaii. Great stems and roots of timber, formerly buried in the upper bog, have been floated down, and stick up fantastically, like arms waving from the flood.

The main road to Killarney is thus effectually breached; and a still more striking scene occurs on the parallel road at Annagh Bridge (Fig. 2). Here the floor of the valley was flat for nearly half a mile west of the bridge, and was divided into a number of fields. The peat has covered the whole of these, and climbed, as has been said, against the wall of Lyne's cottage. The road is broken into sections and seems utterly destroyed; and bog-timber, which is abundant in this district, juts out everywhere above the slime. The peat has left traces on the top of the buttresses of the bridge, six feet above the present level of the water; and movements were noticed here in the subsiding flow a week after the catastrophe.

After this wild scene, the valley narrows, and the black borders to the stream show the height to which the flood first rose; every boulder has a bank of débris behind it, and islets of peat, bog-timber, and grassy tussocks have risen in the middle of the stream. The piers of Six-Mile Bridge, close to Barraduff, six miles from the original bog, are still clogged with timber, and show peat-patches a good five feet above the stream. Even travellers by rail can trace from this point downwards the black deposits on the banks of the Ownacree, down to the viaduct before Headford Junction.

As to the origin of the bog-slide, it must be compared, as already hinted, with the phenomena of surface-creep, which are strikingly illustrated by the stone rivers of the Falkland Isles and the constantly occurring landslides of the taluses of Tyrol. The ridging of soils upon steep hillsides is a well-known and milder form of this sliding motion; and a field laid out upon a slope, in an even moderately rainy climate, may be considered as being always added to at the upper end, and carried away down-hill at the lower. In peat-bogs, the water finds its way out in numerous channels into the main stream of some neighbouring valley; and the banks of these channels are always in a state of flux. During stormy weather, the black saturated lower layers of the bog are washed out in far larger quantity than the brown and drier upper layers. Rifts and signs of movement in the latter will then readily occur.

As Sir R. Griffith pointed out in 1821, there is little cohesion between the water-logged lower layers and the impermeable clay or other material which underlies the whole, and which allows, in the first instance, of the accumulation of the bog. The moving bog in the King's County was accounted for by the occurrence of a dry season, during which extraordinary cuttings were made, giving a face of thirty feet. The pulpy lower layers were thus reached, and were set free, carrying away the upper masses on their surface. The process is analogous to that which forms caverns in many lava-flows, the fluid lower portion becoming liberated and rushing out from under the upper part.

Similarly, the deep cutting of the bog of Knocknageeha may have been injudicious in so wet an area. It is possible that official inspection is required in these matters, as in more elaborate quarrying operations; and the loss of life in the present instance makes a consideration of the condition of other bogs at least desirable. But the immediate cause of the flow seems to have been the heavy rainfall of December 1896, which raised the level of the water in the workings and the level of saturation in the bog. Even in broad daylight it would have been impossible to check the movement, when once the Kingwilliamstown road had been overpowered. The slope on which the bog moved, making in the first mile an approximate allowance for the original thickness of the peat in Knocknageeha, falls about 120 feet in the first mile, 100 feet in the second, 95 feet in the third, and 45 feet in the fourth. The fall of the valley-floor as far as Annagh Bridge is thus about one hundred feet per mile, decreasing rapidly before the bridge; and it may be remembered, for future guidance, that this fall is sufficient to allow of a bog-slide of truly catastrophic character.

GRENVILLE A. J. COLE.

NOTES.

IT is stated that Sir Joseph Lister, on being raised to the peerage, has selected the title of Lord Lister.

LORD KELVIN and Prof. Simon Newcomb have been elected honorary members of the St. Petersburg Academy of Sciences, and Lord Rayleigh has been elected a corresponding member.

THE Geological Society of London will this year award its medals and funds as follows:—The Wollaston Medal to W. H. Hudleston, F.R.S.; the Murchison Medal and part of the Fund to Horace B. Woodward, F.R.S.; the Lyell Medal and part of the Fund to Dr. G. J. Hinde, F.R.S.; the Bigsby Medal to Clement Reid; the proceeds of the Wollaston Fund to F. A. Bather; the balance of the proceeds of the Murchison Fund to S. S. Buckman; the balance of the proceeds of the Lyell Fund to W. J. Lewis Abbott and J. Lomas.

ANOTHER instance of the interest which the German Government takes in the advancement of science is afforded by the fact that an item in the Prussian estimates is a vote of 50,000 marks to the Ministry of Public Instruction for investigations with the Röntgen rays. The vote (says the Berlin correspondent of the *Times*) is justified by a reference to the importance which the new invention has been shown to possess in the spheres of physics, anatomy, physiology, zoology, botany, and kindred sciences. The object of the grant is to enable institutes and certain men of science to procure the necessary apparatus, and to defray the expense of exhaustive experiments.

THE Royal Academy of Sciences of Turin announces that the term for competition for scientific works and discoveries made in the four previous years 1893–96, to which only Italian authors and inventors were entitled, was closed on December 31, 1896. The Academy now gives notice that the new term for competition for the eleventh Bressa Prize, to which scientific men and inventors of all nations will be admitted, has begun. A prize will, therefore, be awarded to the scientific author or inventor, whatever his nationality, who during the years 1895–98, "according to the judgment of the Royal Academy of Sciences of Turin, will have made the most important and useful discovery, or published the most valuable work on physical and experimental science, natural history, mathematics, chemistry, physiology, and pathology, as well as geology, history, geography, and statistics." The term will be closed at the end of December 1898. The sum fixed for the prize, deducting income tax, will be of 9600 francs. Competitions, which must be in print, must be sent in within the above-stated time, accompanied by a letter to the President of the Academy. Unsuccessful competitive works are not returned. None of the national members, resident or non-resident, of the Turin Academy can obtain the prize. The prize may, however, be awarded to a non-competitor if he is considered the most worthy to receive it.

We have it on the authority of the *Times* correspondent at Monte Video, that the report is fully confirmed that Prof. Giuseppe Sanarelli, who is director of the Uruguayan National Institute of Experimental Hygiene, has discovered the bacillus of yellow fever, and will shortly publish the result of his experiments. He has already reported his discovery to the Academy of Medicine in Rome.

In consequence of the danger for Russia caused by the spread of the plague in India, the Russian Government has decided to appoint a special commission, under the presidency of the chief of the sanitary department, Dr. Rogozin, whose task will be to decide upon the necessary measures of precaution and the means for carrying them out promptly. We learn from the *Times* correspondent at Cairo, that Rogers Pasha, Director-General of the Sanitary Department, and Dr. Bittar, Government bacteriologist, are commissioned to study the epidemic plague in Bombay and the best measures for safeguarding Egypt against its introduction, the danger lying especially in the infection of the Mecca pilgrims.

The Peninsular and Oriental Company's steamer *Nubia* arrived in Plymouth Sound, from Calcutta, on Saturday last, with a detachment of the North Lancashire Regiment, and it was reported that several cases of cholera had occurred among the troops a few days after the vessel had touched at Port Said. Seven deaths have taken place, and eight cases are now under treatment in the hospital ship *Pique;* but there is no suspicion that the disease will extend further. The origin of the outbreak of the disease on board the ship is at present doubtful, but medical officers of the Local Government Board are actively engaged in investigating it. Dr. Bulstrode has given it as his opinion that there was no fault in the water supply of the ship. It is suggested that fruit consumed at Port Said was the source of the disease, but little support can be found for this theory. As the outbreak occurred among men of a regiment at present stationed at Ceylon, possibly it originated at Colombo, where there was a sharp attack of cholera shortly before Christmas.

Mr. Horatio Hale, of Canada, the well-known anthropologist, died on December 29. He was vice-president of the American Association for the Advancement of Science, for the Anthropological Section in 1886, at the third Buffalo meeting. We regret also to record the deaths of Johann August Streng, the mineralogist, at Giessen; Dr. John William Stubbs, Senior Fellow of Trinity College, Dublin; Dr. P. Binet, Deputy Professor of Therapeutics in the University of Geneva, and author of numerous researches on the action of drugs, aged forty-one; Dr. Ferdinand Morawitz, founder of the Entomological Society of St. Petersburg; and Dr. Modest Galanin, editor of the St. Petersburg *Journal of Public Hygiene.*

The large male Patagonian Sea-lion (*Otaria jubata*), which has been one of the great attractions in the Zoological Society's Gardens since its arrival in 1866, having died of old age, its place has been temporarily filled by a small female of the Cape Sea-lion (*Otaria pusilla*). But measures are being taken, we believe, to obtain another representative of one of the larger species of this group.

During his recent adventurous journey across British New Guinea (see *Geogr. Journ.*, 1897, p. 93), Sir William MacGregor discovered a fine new Bird of Paradise on the heights of Mount Scratchley. An example of this bird has arrived in England to be figured in the next number of the *Ibis*, and will be exhibited by Mr. Sclater at the next meeting of the British Ornithologists' Club on the 20th inst.

There are now in this country, says the *British Trade Journal*, a number of Japanese experts appointed by their Government to study the iron and steel making processes and plant of the leading European and American works. They will leave shortly for the continent, to examine the principal iron and steel centres of France, Belgium, and Germany, and probably of Austria and Sweden, returning to this country to visit South Wales prior to their departure for Japan *viâ* the United States. At the end of their tour they are to decide upon the processes and plant best adapted for the production of steel and iron from Japanese coal and ore, the Japanese Government having voted 500,000*l*. for the establishment of works for this purpose near Shimonoseki. The building of these is to begin next autumn, and they will, when finished, have an output of 100,000 tons a year.

On Tuesday next, January 19, Prof. Augustus D. Waller, F.R.S., will deliver the first of a course of twelve lectures on "Animal Electricity," at the Royal Institution. On Thursday, January 21, Prof. Henry A. Miers, F.R.S., will begin a course of three lectures on "Some Secrets of Crystals." The Friday evening meetings of the members will commence on January 22, when Prof. Dewar will deliver a lecture on "Properties of Liquid Oxygen." Prof. J. C. Bose will deliver his discourse, on "The Polarisation of the Electric Ray," on Friday evening, January 29, and not on February 5, as previously announced.

The second series of the Sunday Lecture Society's programme commences on January 17, when Prof. Norman Collie, F.R.S., will lecture on "The Mountains of Britain." Among the other lecturers who will discourse on Sunday afternoons at St. George's Hall, Langham Place, between now and the end of of next month, are Prof. L. C. Miall, F.R.S., on "Life on the Surface of Water"; Dr. C. W. Kimmins, on "Ancient and Modern Views of Fire"; and Mr. Arthur W. Clayden, upon "The Light of the Stars."

No excuse is needed in again directing attention to the appeal which has been made for funds to defend the public right of access to the Giant's Causeway, County Antrim, Ireland. It seems almost incredible that an attempt should be made to enclose such a wonderful natural formation as the Giant's Causeway, which has been open to the public from time immemorial, and is annually visited by about 80,000 persons. A few persons have, however, lately formed themselves into the Giant's Causeway Company, Limited, and leased from the owners the soil over which the Causeway is approached, claiming the right to close public access to it. The Company has instituted proceedings in the Court of Chancery to establish their claim, and restrain the defendants (members of the public who recently visited the Causeway) from trespassing on the Company's ground. The costs of defending the public rights may amount to 400*l.* or more, and this has to be raised by subscription. We hope and believe that when the general public come to know how matters stand, and that prompt and decisive action is necessary, they will rally to support the Defence Committee, and contribute to defray the expense involved in defending the suit. Subscriptions are earnestly appealed for, and may be forwarded to Sir William M'Cammond, Town Hall, Belfast, Treasurer; or, Seaton F. Milligan, Bank Buildings, Belfast, Hon. Sec. The National Footpath Preservation Society has prepared a leaflet containing a tracing of the Causeway and neighbourhood from the 6-inch Ordnance Map, and views of the basaltic formations. These illustrations, with the text which accompanies them, should be successful in gaining subscriptions for the righteous cause which the Defence Committee has in hand.

THE epidemic of bubonic plague at Bombay has assumed very alarming form. According to the official returns there have been up to the present 2850 cases of plague and 2028 deaths. The mortality for the past week from all diseases was 1711. The exodus from Bombay has now amounted to between 100,000 and 150,000 persons. The plague is also rapidly increasing at Karachi, where, up to January 10, there had been 220 cases and as many as 214 deaths. In connection with the question of the spread of plague, some remarkable information is contained in a lecture delivered by Dr. James Cantlie before the Epidemiological Society, and printed in the *Lancet*. Rats appear to be particularly susceptible to plague. There was a great mortality amongst rats in the Hong-Kong epidemic, and in Canton the rats entirely disappeared from districts of the city where the diseases had lasted for some time; as many as 22,000 dead rats were collected in a few weeks. But more remarkable than this tremendous mortality is the fact that a month before the plague broke out in Bombay, it was known that the rats were dying in thousands. The rat, therefore, seems to be affected before the human being; and the fact of dead rats being found about a house during the plague epidemic is, Dr. Cantlie thinks, a true warning that the inmates of the house will, in all probability, be attacked. Not only rats, but pigs, dogs, snakes, jackals, and pigeons are affected by a fatal malady whilst plague is epidemic among human beings. What Dr. Cantlie concludes from the study of infection of animals is: (1) that the rat is the animal most liable to be attacked by plague; (2) that rats suffering from, or dead from plague may infect other animals, such as snakes and jackals, who consume them; (3) that rats are always affected by a disease similar to plague at the same time man suffers; (4) that the rat may infect man, but the means of conveying the contagium is not known. As to the high mortality of rats before the plague, it seems doubtful whether rats are really infected before human beings, or whether only the incubation period is shorter in them than in man.

TO our previous brief note (p. 159) on Mr. J. E. S. Moore's work at Lake Tanganyika, where he spent some months in the study of the fish and fresh-water medusæ of the lake, we now add the following particulars from the *Central African Gazette*, published at Zomba:—"Mr. Moore spent most of his time at the station of Nyamkolo, on the southern shore of Lake Tanganyika, and from there he made various journeys by boat and by land, travelling up the west coast as far as Muliro's, and up the east shore of the lake as far as the Belgian station Karema. He also crossed over from the south end of Tanganyika to the mountains overlooking the north-western end of Lake Rukwa, and saw this lake in the distance. It is a curious fact that although five or six Europeans have seen Lake Rukwa, only two have been able to reach its waters. Dr. Cross in 1889 made his way through the swamp and reeds near the southern end of the lake, and Mr. Nutt in 1895 just reached the shore at the south-western side. Mr. Moore verified the report, which travellers on Tanganyika have heard from time to time, that there is a large fish in the lake which rushes at the paddles of a canoe passing through the water. He actually say this take place. He also discovered a large electric fish which gives a severe shock on being touched. Tanganyika, indeed, appears to be full of fish. By trailing a line with an artificial minnow behind the boat, Mr. Moore caught enormous numbers of fish, some of them up to sixty pounds in weight—bright clean fish with silvery scales. The heaviest fish which was seen in the lake weighed over ninety pounds; this was a sort of mud fish. Sponges were also discovered in Tanganyika, which, though of no great size, were undoubtedly real sponges. On the east side of the lake, in a bay where the striped leech was very common, Mr. Moore found a small fish about the size of a small minnow, whose back was striped in imitation of the leech, and this seemed to protect it against the raids of the kingfishers which, while constantly picking up other small fish, avoided this particular one."

IN the current number of the *Astrophysical Journal* (December 1896), Mr. L. E. Jewell gives us the results of his investigation of the relative quantities of aqueous vapour in the atmosphere determined by means of the absorption lines in the spectrum. The method of observation was to estimate the intensity of the water vapour lines in terms of the solar lines most nearly equal to them in intensity, and close enough to render the comparisons exact. The work was found to be considerably facilitated by making a scale, the use of which eliminated several otherwise necessary computations and reductions. Among some of the results may be mentioned the following:—The intensities for the summer months were much greater than for the winter months. A comparison of the curves (deduced from monthly means) representing these intensities, and one representing oxygen, shows that water vapour is very differently distributed in our atmosphere from oxygen, and is also greatly different at different seasons. The curves of intensity indicated "a remarkable difference between the conditions prevailing during cold waves and very warm humid weather." Mr. Jewell is of opinion that observations made with small spectroscopes having insufficient dispersion to easily see the various lines distinctly, are worse than useless for weather forecasting, as the region of the rain band contains many solar lines which cannot be distinguished from water vapour lines without good definition and considerable dispersion. With sufficient dispersion, however, the study of the distribution of water vapour in the atmosphere is of great value, but hardly sufficient to justify the use of spectroscopes at most meteorological stations.

WRITING in the *Monthly Weather Review*, Prof. Cleveland Abbe says:—Many persons still fail to realise the fact that the weather proverbs which pass down from generation to generation as unquestioned as are the nursery stories, belong to what may be properly called mythology. Like the myths and legends of ancient times, they may, possibly, have had some slight basis of fact; they may possibly have applied satisfactorily to some far-off period and some far-distant land, or to one special occasion, but do not, necessarily, hold good to-day and in our own country. At a recent meeting of the Meteorological Society of France, the members discussed the popular proverb: "When it rains on St. Medard's day it will rain for forty days unless fine weather returns on the day of St. Bernabe." M. Teisserenc de Bort showed that M. Lancaster, who, several years ago, examined this question, found no results tending to verify this saying to predict in advance a rainy period; thus in examining the data collected from 1863 to 1896, he finds that in the first days of June the rain is, on the average, a little more abundant, and diminishes towards the end of that month. He himself had also studied the records, but could not find any systematic grouping of the days of rain around the day of St. Medard. M. Renou said that M. Elie de Beaumon has called attention to the fact that the proverb relative to St. Medard dates from the middle ages, and that since then the order of the saints' days in the calendar has been changed, and that now the day of St. Gervais is the one to which the proverb should be applied. M. de Beaumont, therefore, examined the question of the grouping of days of rain according to the new date, but did not find any verification of the proverb.

THE *Monthly Wealher Review* (Washington) for September last contains, among various other interesting notes, one upon the first attempt to measure wind force. Prof. Marvin points out that Sir Isaac Newton in his boyhood made a rough determination of the force of a great gale which occurred on September 3, 1658, by jumping first in the direction in which the wind blew, and then in opposition to the wind, and afterwards measuring the length of the leap in both directions. An account of this will be found in Sir David Brewster's "Memoir" of Sir Isaac Newton. The first piece of apparatus applied to the measurement of the wind was probably the pendulous plate anemometer introduced by the Royal Society on the recommendation of Sir Christopher Wren and others, about 1665. This instrument gave a measurement of the effect of moving air on a resisting plate. The question of the measurement of the pressure or velocity of the wind by anemometers is still in a condition far from satisfactory, and the recent annual reports of the Meteorological Council show that the subject is still engaging the attention of that body.

MR. G. H. KNIBBS, Lecturer on Surveying in the University of Sydney, has communicated to the Royal Society of New South Wales, a note on recent determinations of the viscosity of water by the efflux method. From his tables it would appear that, for temperatures from 0° to 50° C., the relative fluidity has been ascertained to within 1 per cent., but that from 50° to 100° C. the uncertainty increases to 5 per cent. This large uncertainty is apparently not explained by possible errors of observation either of temperatures, efflux times, or of the dimensions of the apparatus. These conclusions are derived from a comparison of the observations of Poiseuille, Graham, Rosenkranz, Shotte, Traube, Noack, and Thorpe and Rodger.

THE importance of the study of the ceremonies of the Australians can scarcely be over-estimated, and it is with pleasure that we draw attention to the recent work in this direction done by R. H. Mathews, who as a professional surveyor has good opportunities for study, of which we are glad to find he makes so excellent a use. In a paper contributed to the Queensland Branch of the Royal Geographical Society of Australasia (vol. x. p. 18, pl. 1), he dealt with the Kamilaroi Class System of the Australian aborigines. The initiation or Bora ceremonies of the Kamilaroi tribes were described in the *Journal of the Anthropological Institute* (vols. xxiv., xxv. pp. 411, 318), and in the *Journ. Roy. Soc. N.S.W.* (vol. xxviii. p. 103); the analogous Burbung ceremonies of the Wiradthuri tribes in the *Journ. Anth. Inst.* (vol. xxv. p. 295); and the similar Bunan ceremony of the south-east coast of New South Wales in *The American Anthropologist* (vol. ix. p. 327). The careful descriptions are supplemented by plans of the grounds where the ceremonies took place, and sketches of the various animals and designs that are carved on neighbouring trees, or cut on the surface of the ground. Mr. Mathews has also published several accounts of the rock paintings and carvings of the Australian aborigines, and we would refer the reader to the following papers: *Journ. Roy. Soc. N.S.W.* (vol. xxvii. p. 353) (for the one in vol. xxix. he obtained the Society's medal), *Proc. Roy. Geogr. Soc. Aust. Queensland Branch* (vol. x. p. 46), *Proc. Roy. Soc. Victoria* (vol. vii. n.s. p. 143), *The American Anthropologist* (vol. viii. p. 268), *Journ. Anth. Inst.* (vol. xxv. p. 145). It is evident that Mr. Mathews has taken a great deal of pains to be accurate, and his training has been valuable for this special kind of work. All the drawings are necessarily reproduced on a very small scale; but it is to be hoped that the original drawings will be preserved in some convenient public institution, where they will be available for future students. We hope that he will be encouraged to continue his labours, and trust that he and others who have the opportunity will find out, *from the natives themselves*, the significance of all the designs and patterns which they come across. With a few more workers like Mr. Mathews, the reproach of the neglect of Australian anthropology would largely be taken away.

MR. C. H. TYLER TOWNSHEND has recently contributed to the *Transactions* of the Texas Academy of Science an essay on the Bio-geography of Mexico, Texas, New Mexico, and Arizona. In this, he criticises Dr. Merriam's division of the life-zones of Eastern North America, "which he has had constant and abundant opportunities of studying during the past five years." Mr. Townshend recognises seven zones of altitude in the district to which he has devoted his attention, and, commencing at the highest, calls them respectively the Arctic, Hudsonian, Canadian, Arid-Transition, Upper-Sonoran, Lower-Sonoran, and Tropical Zones. These he proceeds to define, chiefly by reference to their different and characteristic forms of vegetation.

WE have received Nos. 2 and 3 of the eighteenth volume of *Notes from the Leyden Museum*, which were published on December 24 last. Besides many entomological and several conchological papers, the publication contains an article by Dr. J. Büttikofer on the birds of Nias, the largest of a long series of islands flanking the west coast of Sumatra, and situated at a distance of about seventy miles from its north-west coast, which has, of late years, been more than once the subject of zoological investigations. Dr. Büttikofer bases his paper on a splendid series of bird-skins collected in this island by Mr. J. Z. Kannegeiter, but takes the opportunity of giving a complete list of the birds of Nias, so far as they are known up to the present time, which are 128 in number. The relationship of this Avifauna is with that of Sumatra, but there are eleven species of birds in Nias which have not been found anywhere else as yet.

AT the Liverpool meeting of the British Association, the Committee for the Study of the Marine Zoology, Botany, and Geology of the Irish Sea presented its fourth and final report, drawn up by Prof. Herdman, a printed copy of which has now reached us. It contains, besides a brief account of the year's work, a complete list of all the species the Committee has recorded from the area. The total number of species included is 2133, and the list comprises all the chief marine subdivisions of the animal kingdom, and also Algæ and Diatomacea. Each name is followed by a reference to the publication of the Liverpool Marine Biology Committee in which the species was recorded or described. The British Association Committee is dissolved, not because the work is finished, but because it was decided that the Association could best render effective help by supporting the Port Erin Biological Station, which is now established and equipped, or by giving grants for special researches.

The formation of organic bases by plants of the orchid family appears first to have been investigated by M. de Wildemann, who in 1892 observed the presence of an akaloïdal product in *Dendrobium nobile*, *D. Ainsworthii*, and other Orchidaceæ. These researches have now been generalised by Dr. E. de Droog, whose investigations are published in the *Mémoires* of the Royal Academy of Belgium. Of the 104 species of orchids examined, nine are to be considered as producing alkaloids, some in all their parts, the others locally, and the author seems to favour the view that the function of these alkaloids is for defensive purposes. Dr. de Droog's paper is illustrated by a lithographed plate, in which the alkaloids present in the cells of *Dendrobium nobile*, *Catasetum Hookeri*, *C. macrocarpum*, and the root of *Phalænopsis Luddemanniana* are coloured red.

M. Camille Flammarion has sent us his interesting annual for the present year, and it is a mine of knowledge, both astronomical and meteorological. The information is not presented in too concentrated a form, but varied in places by explanations and summaries, together with excellent illustrations (fifty-six in number). Some of the main points which call for especial notice may be stated as follows. Under eclipses two clear diagrams are given, showing the most favourable points for viewing the two annular and only solar eclipses of the year. In addition to the ephemeris of each planet, charts are given showing their apparent tracts among the stars. For each day of the year the most interesting phenomena to be observed are inserted in calendar form, and diagrams are added showing the positions of the constellations for each month. A list of the minor planets, arranged in order of their perihelia distances, forms an interesting table. Among the *Notices Scientifiques* may be mentioned a chart of the movement of the terrestrial pole from 1890-95, a note on helium, and a brief reference to the recent total solar eclipse, with Dr. Brester's drawing of the corona. Lowell's chart of Mars on a reduced scale, and some planetary drawings, as well as a short summary of the eclipse cycle of fifty-four years, are also inserted. Besides being serviceable to astronomers, this annual should prove a valuable *vade-mecum* to amateurs, as they have at hand all the information for observing, at the right time, the most interesting celestial phenomena.

We have received from the compiler, Mr. Arthur Mee, an almanac of moderate size for the use of amateur astronomers. The information is arranged in the form of a calendar, and shows the observer, at a glance, the sequence of the more important phenomena that will occur throughout the year. In addition to data referring to the positions of the sun and moon, attention is drawn to the most favourable times for viewing the planets, variable star and satellite phenomena, besides a selection of special clusters and nebulæ most suitable for small apertures. The arrangement of the information is simple and clear, so that this card almanac supplies a really serviceable daily reference sheet to those for whom it is specially intended. There is also a very good reproduction of the moon, taken from a photograph made at the Paris Observatory. One cannot help mentioning that as the almanac is intended for actual observers, the type of both figures and letters will most probably be found too small to be read in any but very good light. As amateurs would be very likely to consult this sheet when observing, it would not be an easy matter to read it by means of the light of an ordinary observatory lamp. It seems to us, however, that the utility of the sheet would be increased if larger and clearer type were in future used. The almanac, nevertheless, contains just that information which an amateur wishes to have at hand, and it should therefore be found to supply a real want.

Mr. C. A. Barber shows, in *Science Progress*, that the present condition of the sugar industry is peculiarly a matter of British interest. The depressed condition of the British colonies engaged in growing the sugar-cane is due to various causes; chief among these are the competition of European-grown beet and the various diseases at present attacking the canes. In his paper, Mr. Barber deals more especially with the first of these causes. The paper on the cell and some of its constituent structures, read at the Liverpool meeting of the British Association by Prof. J. B. Farmer, is printed in full in the same number of *Science Progress*. Dr. John Beddoe continues his paper on "Selection in Man." From the facts he adduces it seems that dark-complexioned men have a bias towards sedentary and indoor employments, while a certain number of the blond type prefer the outdoor employments connected with the land or with the care of animals. The statistics he gives support the conclusion that, in this country, more criminals than honest men are of dark complexion. Other contributions are:—"The Glossopteris Flora," by Mr. A. C. Seward; "Condensation and Critical Phenomena," by Prof. J. P. Kuenen; "The Origin of Lakes, by Mr. J. E. Marr, F.R.S.; and "The Causes of Variation," by Mr. H. M. Vernon.

From Prof. E. Cosserat, of Toulouse, and M. F. Cosserat, of Paris, we have received the first part of their memoir "Sur la Theorie de l'Elasticité," in which the principles of the subject are well put forward.

By the publication of Part v. of the "Bibliography of American Economic Entomology," the task of bringing together the more important writings of Government and State Entomologists, and other contributions to American economic entomology, is completed up to the year 1888. Efforts will be made to bring the bibliography up to date by publishing occasional supplements. The work is published by the authority of the U.S. Secretary of Agriculture, and the present part of it has been prepared by Mr. S. Henshaw.

The additions to the Zoological Society's Gardens during the past week include a Pig-tailed Monkey (*Macacus nemestrinus*, ♂) from Java, presented by Mrs. Baillie; two Leopards (*Felis pardus*, ♂ ♀) from Ceylon, presented by the Hon. Sir Joseph West Ridgeway; a Moluccan Kestrel (*Tinnunculus moluccensis*) from Triton Bay, New Guinea, presented by the Hon. Walter Rothschild; two Roseate Cockatoos (*Cacatua roseicapilla*) from Australia, presented by Mr. Richard J. L. Price; a Yellow-backed Lory (*Lorius flavo-palliatus*) from Batchian, presented by Miss A. M. Elwood; a Derbian Zonure (*Zonurus giganteus*), three Angola Frogs (*Rana angolensis*) from South Africa, presented by Mr. J. E. Matcham; seven Common Squirrels (*Sciurus vulgaris*), British; two Indian Dial Birds (*Copsychus saularis*) from India, purchased; a Bennett's Wallaby (*Macropus bennetti*), a Rufous Rat Kangaroo (*Œpyprymnus rufescens*), born in the Gardens.

OUR ASTRONOMICAL COLUMN.

The Algol Variable + 17° 4367 W Delphini.—Prof. E. C. Pickering publishes in the *Astrophysical Journal* for December the ephemeris and light equation of this variable for the present year. No modification is made in the formula of reduction (JD 2412002·500 + 4·8064 E), although the observations indicate a slight change in the period, making the minima occur about fifteen minutes before the computed times. Prof. Pickering adds, however, that by diminishing the period by about two seconds this difference, caused by an inexact knowledge of the light curve when the ephemeris was first computed, would disappear. A set of photometric measurements with the adjacent star + 17° 4368, exceeding four thousand in number, and made by Mr. O. C. Wendell, has given a very accurate